

09/937569

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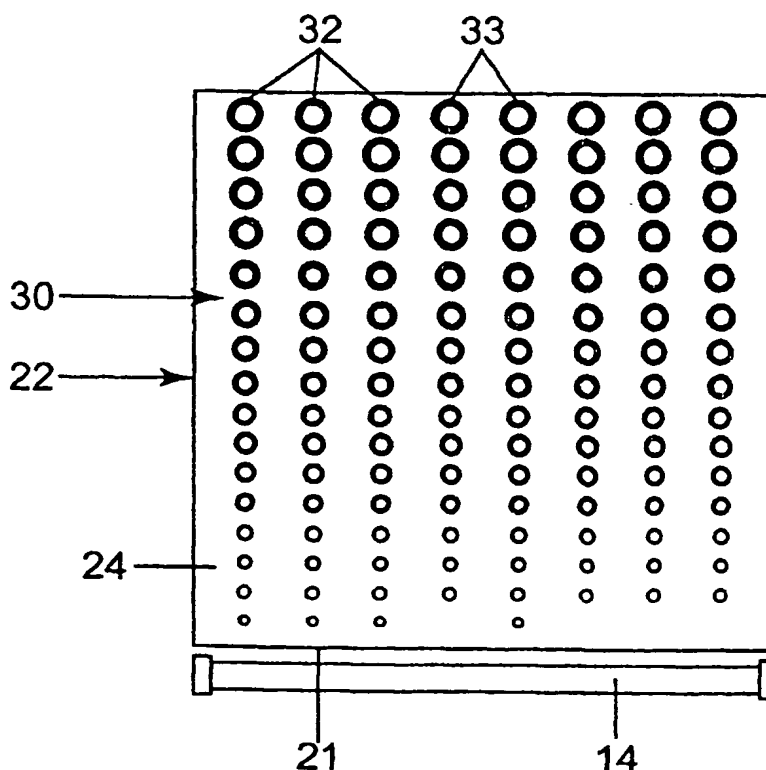
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : G09F 13/18		A1	(11) International Publication Number: WO 00/58931
			(43) International Publication Date: 5 October 2000 (05.10.00)
(21) International Application Number: PCT/AU00/00252 (22) International Filing Date: 27 March 2000 (27.03.00) (30) Priority Data: PP 9446 26 March 1999 (26.03.99) AU (71) Applicant (for all designated States except US): B.T.B.H. HOLDINGS LIMITED [CY/CY]; Offices 2, 7, 9 & 10, 22 Hera Street, 1521 Nicosia (CY). (72) Inventors; and (75) Inventors/Applicants (for US only): PALMER, Glen, Scott [AU/AU]; 11 Mather Road, Mt Eliza, Victoria 3930 (AU). MOLLOY, Glenn, David [AU/AU]; 18 Maberley Crescent, Frankston, Victoria 3199 (AU). (74) Agent: FREEHILLS CARTER SMITH & BEADLE; 101 Collins Street, Melbourne, VIC 3000 (AU).		(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.	

(54) Title: DISPLAY DEVICE

(57) Abstract

A display device for use in an illuminated display system has a transparent medium (22) with the first and second opposing surfaces (24, 25) to be illuminated in use. At least one (24) of the first and second opposing surfaces has a matrix (30) of spots (32) each having a hollow transparent interior (33) substantially covering at least a major portion of surface to be illuminated for providing an even and increased illumination throughout that portion of the respective surface. The matrix of spots does not form a part of a message or information to be illuminated.



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DISPLAY DEVICE

Field of the Invention

This invention relates to a display device of particular, though not exclusive, application to illuminated display systems such as illuminated display boards.

Reference to related patent

This invention is an improvement in the invention disclosed and defined in Australian patent 647834 (AU-B-86226/91), the contents of which are hereby incorporated by reference. Throughout this specification Australian patent 647834 is referred to as the "earlier patent".

Background to the Invention

In the earlier patent there is disclosed an illuminated display system including a transparent medium having two opposing surfaces to be illuminated. The illumination is from the lower-most edge of the transparent medium. Both surfaces to be illuminated have a matrix of dots substantially covering the surfaces, resulting in an increased illumination of the surfaces.

The results using the invention of the earlier patent are an improvement over the known art, but further improvement is believed to be possible. Furthermore, the display system of the earlier patent involves the task, and associated cost, of printing a matrix of dots on both surfaces of the transparent medium.

In the earlier patent "dots" are defined as being of any size or shape, and are said to be transparent or opaque and more preferably light-coloured, for example white.

"Matrix" is defined in the earlier patent as any display or array of dots. "Transparent medium" is defined as being one or more transparent sheets, which

may be glass or plastic, but are preferably acrylic.

These definitions are also adopted for this specification, including the claims.

It is the principal object of the present invention to provide a display device for use in an illuminated display system having improved performance over that disclosed in the earlier patent.

Summary of the Invention

With the above and other objects in mind, the present invention provides a display device for use in an illuminated display system. The device has a transparent medium with first and second opposing surfaces to be illuminated in use. At least one of the first and second opposing surfaces has a matrix of spots each having a hollow transparent interior substantially covering at least a major portion of the surface to be illuminated for providing an even and increased illumination throughout that portion of the respective surface. The matrix of spots does not form a or part of a message or information to be illuminated.

Preferably, the matrix covers substantially the entire surface to be illuminated.

"Spots" used in this specification, including the claims, can be of any size or shape, for example round, rectangular, ellipsoid, polygonal, triangular or irregular. A convenient and advantageous shape is an annulus.

Preferably, the hollow interior of each spot is of a shape corresponding to the outer periphery of the spot. Alternatively, the hollow interior may be of a shape different to the outer periphery of the spot.

The spots are advantageously translucent, though they may be opaque, and are preferably light coloured, eg. white. Advantageously, only one of the first and second surfaces has the matrix of spots thereon. Alternatively, both the first

and second surfaces may have the matrix of spots thereon.

Preferably, the spots increase in size, preferably both of the external periphery and of the hollow interior periphery, with increasing distance from an edge of the medium at which a light source is located in use of the display system.

In the display system described and illustrated in the earlier patent, the dots are solid. It has been realised that by having spots with hollow transparent interiors instead of dots, light can pass not only around the outer edge of each spot, but through the hollow interior of each spot, and the adjacent edge of each hollow interior. In passing each edge, there is a refraction, or bending, of the light. It is thought that this refraction or bending of light contributes to the functionality of the display system of the earlier patent, and the present inventors have appreciated that by substituting spots having hollow transparent interiors for the dots of the prior system, the linear edge available for refraction of the light is significantly increased, and the performance of the system enhanced in terms of increased and/or more even illumination.

Brief Description of the Drawings

The invention will be further described by way of example only with reference to the accompanying drawings, in which:

Figure 1 is a cross-sectional view, not to scale, of an illuminated display system incorporating a device according to an embodiment of the invention; and

Figure 2 is an elevational view of the front surface of the transparent panel of the device, on the line 2-2 in Figure 1.

Description of Preferred Embodiment

The illuminated display system 10 illustrated in Figure 1 includes an elongate base housing 12 which serves both as a protective cover for an elongate lamp 14 and as a support base for an upstanding display device in the form of a

display board 20.

The principal component of display board 20 is a transparent panel 22 of a suitable plastics material having first and second opposing surfaces 24, 25 to be illuminated in use. The first or front surface 24 has a matrix 30 of white translucent spots 32 with hollow transparent interiors 33. In this case, spots 32 are annular spots. As depicted in Figure 2, the spots are arranged in a regular rectangular array in which the annular spots are of progressively increasing size in a direction away from the lower edge face 21 of panel 22, i.e. the edge face illuminated by lamp 14. The spacing of the spots is uniform laterally but also slowly increasing in the direction away from the lower edge of panel 22.

The front surface 24 having spots 30 thereon is overlaid by a clear or transparent white face panel 26, while rear surface 24 has a clear, transparent white or reflecting white face or backing panel 28. If desired eg. for a two-sided sign board, surface 25 may also have a matrix of spots similar to the matrix depicted in Figure 2. The display board assembly 20 is retained between a pair of spaced upstanding parallel flanges 16, 17 that define an opening 15 of housing 12. Panel 22 depends through opening 15 so that its lower edge face 21 is immediately adjacent lamp 14 for illumination of surfaces 24, 25 via the body of the panel.

Lamp 14 is typically a fluorescent tube, but may be any other suitable preferably elongate, form of light source. If a fluorescent tube, housing 12 also retains the associated ballast 18.

A second lamp may of course be provided along the top edge of panel 22, especially where the display board is of large dimensions. In alternative arrangements, lamps may extend along one or both upright edges of the panel.

It has been found that by using the spots of the present invention there is an improvement in illumination. Table 1 compares measured luminance values (B) of a 1200mm high form of board according to Figure 1 with top and bottom lamps, with those (A) for a board having a similar matrix of dots, i.e. solid spots, of similar

external shape and dimensions at similar centre-to-centre spacings. The two sets of lux readings were taken at successive positions on the front surface of the panel over its 1200mm height.

Table 1

Position of Measurement	Device A	Device B
<u>1</u>	148	153
<u>2</u>	154	165
<u>3</u>	103	147
<u>4</u>	85	134
<u>5</u>	93	128
<u>6</u>	129	139
<u>7</u>	134	130

As required for the device of the earlier patent, the matrix of dots was printed on both surfaces of device B. As preferred for the present invention, the matrix of spots was printed on a single surface of device A. It can be seen from Table 1 that improved illumination resulted for all positions except that closest to the lower lamp. Furthermore, the readings demonstrate an improved evenness of illumination in the central region of the panel: the maximum variation of the lowest from the highest reading is 22%, compared with 44% for the prior device. It will further be noted that the improved illumination occurred for most positions despite the printing of the spots of the present invention being on one surface only.

Whilst there has been described in the foregoing description a preferred embodiment of the present invention, it will be understood that many variations or modifications in details of design or construction may be made without departing from the essential features of the present invention.

Claims

- 1 A display device for use in an illuminated display system, said device having a transparent medium with first and second surfaces to be illuminated in use, wherein at least one of the first and second opposing surfaces has a matrix of spots each having a hollow transparent interior, which matrix covers at least a major portion of the surface to be illuminated for providing an even and increased illumination throughout that portion of the respective surface, the matrix of spots not forming a or part of a message or information to be illuminated.
- 2 A display device as claimed in claim 1, wherein the hollow transparent interior of each spot is of a shape corresponding to the outer periphery of the spot.
- 3 A display device as claimed in claim 1, wherein the hollow transparent interior is of a shape different to the outer periphery of the spot.
- 4 A display device as claimed in any one of the claims 1 to 3, wherein the spots are translucent.
- 5 A display system as claimed in any one of claims 1 to 3, wherein the spots are opaque.
- 6 A display device as claimed in any one of claims 1 to 5, wherein the spots are light coloured, eg. white.
- 7 A display device as claimed in any one of claims 1 to 6, wherein only one of the first and second surfaces has the matrix of spots thereon.
- 8 A display device as claimed in any one of claims 1 to 6, wherein both the first and second surfaces have the matrix of spots thereon.
- 9 A display device as claimed in any one of claims 1 to 8, wherein said spots

increase in size with increasing distance from an edge of the medium at which a light source is located in use of the display system.

- 10 A display device as claimed in claim 9, wherein said increase in size is both of the external periphery and of the hollow interior periphery.
- 11 A display device as claimed in any one of claims 1 to 10, wherein said spots are annular spots.
- 12 A display device as claimed in any one of claims 1 to 11, wherein said matrix covers substantially the entire surface to be illuminated.
- 13 An illuminated display system including a display device as claimed in any one of claims 1 to 12, in combination with a light source in optical communication with said transparent medium for illuminating said first and second surfaces.
- 14 A display system as claimed in claim 13, wherein said light source is in said optical communication with the transparent medium at an edge surface of the medium disposed transversely with respect to said first and second surfaces.

FIG 1

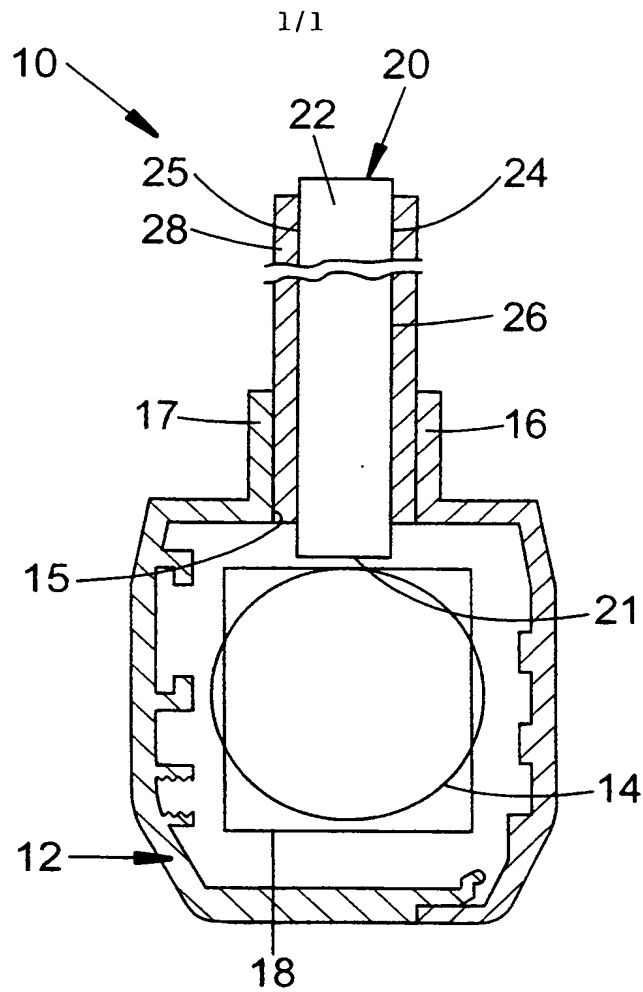
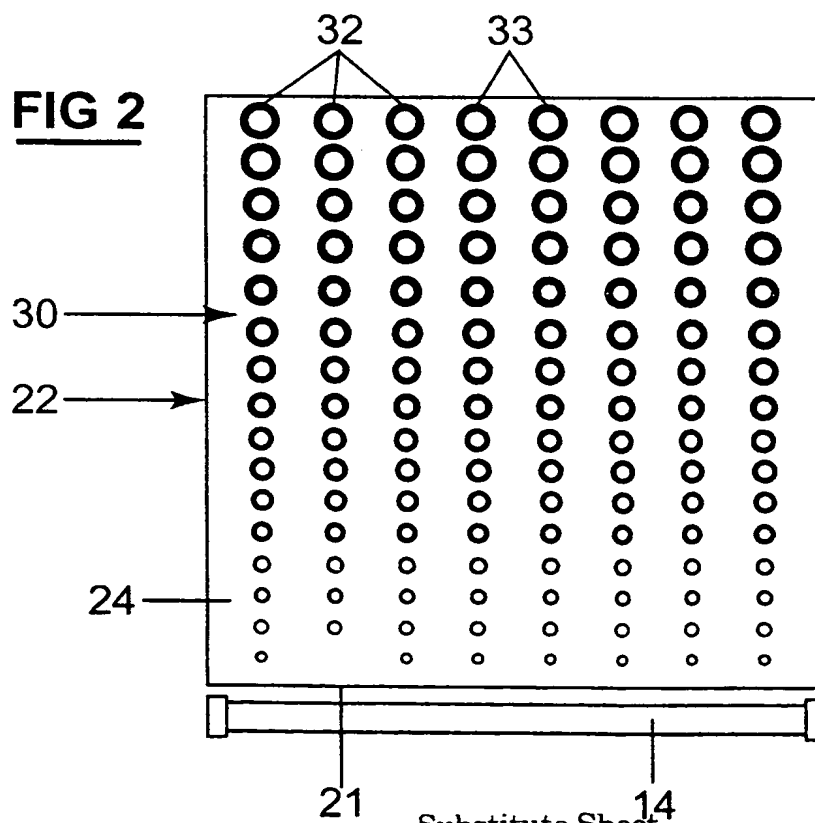


FIG 2



INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/00252**A. CLASSIFICATION OF SUBJECT MATTER**Int. Cl. ⁷: G09F 13/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC G09FDocumentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU:IPC AS ABOVEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT, JAPIO**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5390436A, ASHALL, 21 February 1995	
A	WO 97/40486A, QUEENSBURY INTERNATIONAL LIMITED, 30 October 1997	
A	WO 98/12690A, ELEVEN LIGHTING PTY LTD, 26 March 1998	

☐ Further documents are listed in the continuation of Box C
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* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
6 April 2000Date of mailing of the international search report
18 APR 2000Name and mailing address of the ISA/AU
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Facsimile No. (02) 6285 3929Authorized officer
S KAUL
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00252

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
US	5390436	AU	86226/91	BR	9106868	EP	549679
		HK	2089/96	SG	68563	US	5625968
		WO	9205535				
WO	9740486	AU	23952/97	EP	894318	GB	2328544
WO	9812690	AU	43714/97	EP	928476		
							END OF ANNEX

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/00252

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. 7: G09F 13/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC G09F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU:IPC AS ABOVE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT, JAPIO

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5390436A, ASHALL, 21 February 1995	
A	WO 97/40486A, QUEENSBURY INTERNATIONAL LIMITED, 30 October 1997	
A	WO 98/12690A, ELEVEN LIGHTING PTY LTD, 26 March 1998	

☐ Further documents are listed in the continuation of Box C ☒ See patent family annex

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"A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent but published on or after the international filing date
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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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Date of the actual completion of the international search
6 April 2000

Date of mailing of the international search report

18 APR 2000

Name and mailing address of the ISA/AU

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Information on patent family members

PCT/AU00/00252

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
US	5390436	AU	86226/91	BR	9106868	EP	549679
		HK	2089/96	SG	68563	US	5625968
		WO	9205535				
WO	9740486	AU	23952/97	EP	894318	GB	2328544
WO	9812690	AU	43714/97	EP	928476		

END OF ANNEX

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 40150739	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. PCT/AU00/00252	International filing date (<i>day/month/year</i>) 27 March 2000	Priority Date (<i>day/month/year</i>) 26 March 1999
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ G09F 13/18		
Applicant B.T.B.H. HOLDINGS LIMITED et al		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.																								
2.	This REPORT consists of a total of 3 sheets, including this cover sheet. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of sheet(s).																								
3.	This report contains indications relating to the following items: <table style="width: 100%; border: none;"><tr><td style="width: 5%;">I</td><td style="width: 5%; text-align: center;"><input checked="" type="checkbox"/></td><td>Basis of the report</td></tr><tr><td>II</td><td style="text-align: center;"><input type="checkbox"/></td><td>Priority</td></tr><tr><td>III</td><td style="text-align: center;"><input type="checkbox"/></td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr><tr><td>IV</td><td style="text-align: center;"><input type="checkbox"/></td><td>Lack of unity of invention</td></tr><tr><td>V</td><td style="text-align: center;"><input checked="" type="checkbox"/></td><td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td></tr><tr><td>VI</td><td style="text-align: center;"><input type="checkbox"/></td><td>Certain documents cited</td></tr><tr><td>VII</td><td style="text-align: center;"><input type="checkbox"/></td><td>Certain defects in the international application</td></tr><tr><td>VIII</td><td style="text-align: center;"><input type="checkbox"/></td><td>Certain observations on the international application</td></tr></table>	I	<input checked="" type="checkbox"/>	Basis of the report	II	<input type="checkbox"/>	Priority	III	<input type="checkbox"/>	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	IV	<input type="checkbox"/>	Lack of unity of invention	V	<input checked="" type="checkbox"/>	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	VI	<input type="checkbox"/>	Certain documents cited	VII	<input type="checkbox"/>	Certain defects in the international application	VIII	<input type="checkbox"/>	Certain observations on the international application
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VI	<input type="checkbox"/>	Certain documents cited																							
VII	<input type="checkbox"/>	Certain defects in the international application																							
VIII	<input type="checkbox"/>	Certain observations on the international application																							

Date of submission of the demand 2 October 2000	Date of completion of the report 18 October 2000
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer S KAUL Telephone No. (02) 6283 2182

I Basis of the report

1. With regard to the elements of the international application:*
- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , received on with the letter of
2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).
3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.
4. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-14	YES
	Claims	NO
Inventive step (IS)	Claims 1-14	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-14	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)**CLAIMS 1-14**

None of the citations in the search report, individually or in combination, disclose all the features of the claims. Furthermore, when compared to prior art none of the claims merely add common general knowledge or features that would be obvious to a person skilled in the art. The claims are, therefore, novel and inventive.

Freehills

Carter Smith Beadle

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17 September 2001

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Page 1 of 1

Pin no: 42099
Checked by

Dear Sirs

B.T.B.H. Holdings Limited
International patent application no. PCT/AU00/00252
Display device

Pursuant to PCT Rule 92bis, please amend the address of the inventors, Glen Palmer and Glenn Molloy, to show the following:

Unit 2
79 Brunel Road
Seaford, Victoria 3198
Australia

Yours respectfully
Freehills Carter Smith Beadle


Greg Noonan
Partner

cc: IP Australia, Acting as Receiving Office, PO Box 200, Canberra ACT
2060

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/AU 97/00650

A. CLASSIFICATION OF SUBJECT MATTER		
Int Cl ⁶ : G09F 13/18		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC G09F 13/18		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU : IPC as above		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT : Matri: and Array: and Dot# JAPIO : As above		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	AU 61878/94 (683874) B (DOUGLAS) 10 November 1994 page 1, lines 4-15, 29-50; page 6, lines 12-14	1-3, 6, 7
X	AU 86226/91 (647834) B (ILLUMINATION RESEARCH GROUP (PROPERTIES) PTY LTD) 15 April 1992 page 2, lines 26-31; page 3, lines 1-8, 13-15; page 4, lines 6-16; page 4a, lines 1-6	1-3, 6
X	EP 506116 A, (NISSHA PRINTING CO LTD) 30 September 1992 whole document	1-3, 6
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 28 November 1997		Date of mailing of the international search report 03 DEC 1997
Name and mailing address of the ISA/AU AUSTRALIAN INDUSTRIAL PROPERTY ORGANISATION PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6285 3929		Authorized officer S KAUL Telephone No.: (02) 6283 2182

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/AU 97/00650

C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2253301 A, (JSB ELECTRICAL PLC), 2 September 1992 whole document	1, 2
A	AU 20642/88 (605342) B, (RHAM INDUSTRIES AUST PTY LTD) 16 February 1989 whole document	
A	EP 561329 A, (ENPLAS CORPORATION) 22 September 1993 whole document	
A	AU 40450/95 A, (CANNON KABUSHIKI KAISHA) 11 JULY 1996 whole document	

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 24 OCT 2000

WIPO

PCT

Applicant's or agent's file reference 40150739	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. PCT/AU00/00252	International filing date (<i>day/month/year</i>) 27 March 2000	Priority Date (<i>day/month/year</i>) 26 March 1999
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ G09F 13/18		
Applicant B.T.B.H. HOLDINGS LIMITED et al		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.	
2.	This REPORT consists of a total of 3 sheets, including this cover sheet. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of sheet(s).	
3.	This report contains indications relating to the following items: I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application	

Date of submission of the demand 2 October 2000	Date of completion of the report 18 October 2000
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustrialia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer S KAUL Telephone No. (02) 6283 2182

I. Basis of the report

1. With regard to the elements of the international application:*
- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , received on with the letter of
2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).
3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished
4. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-14	YES
	Claims	NO
Inventive step (IS)	Claims 1-14	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-14	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)**CLAIMS 1-14**

None of the citations in the search report, individually or in combination, disclose all the features of the claims. Furthermore, when compared to prior art none of the claims merely add common general knowledge or features that would be obvious to a person skilled in the art. The claims are, therefore, novel and inventive.

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

FREEHILLS CARTER SMITH & BEADLE
101 Collins Street
Melbourne, VIC 3000
AUSTRALIE

Date of mailing (day/month/year) 17 October 2001 (17.10.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 40150739	
International application No. PCT/AU00/00252	International filing date (day/month/year) 27 March 2000 (27.03.00)

1. The following indications appeared on record concerning:		
<input checked="" type="checkbox"/> the applicant	<input checked="" type="checkbox"/> the inventor	<input type="checkbox"/> the agent <input type="checkbox"/> the common representative
Name and Address MOLLOY, Glenn, David 18 Maberley Crescent Frankston, Victoria 3199 Australia	State of Nationality AU	State of Residence AU
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input type="checkbox"/> the name	<input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence
Name and Address MOLLOY, Glenn, David Unit 2 79 Brunel Road Seaford, Victoria 3198 Australia	State of Nationality AU	State of Residence AU
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer P. Blanchet (Fax 338.87.40) Telephone No.: (41-22) 338.83.38
---	---

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 08 November 2000 (08.11.00)	
International application No. PCT/AU00/00252	Applicant's or agent's file reference 40150739
International filing date (day/month/year) 27 March 2000 (27.03.00)	Priority date (day/month/year) 26 March 1999 (26.03.99)
Applicant PALMER, Glen, Scott et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
 02 October 2000 (02.10.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Claudio Borton

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

FREEHILLS CARTER SMITH & BEADLE
101 Collins Street
Melbourne, VIC 3000
AUSTRALIEDate of mailing (day/month/year)
14 June 2000 (14.06.00)Applicant's or agent's file reference
40150739

IMPORTANT NOTIFICATION

International application No.
PCT/AU00/00252International filing date (day/month/year)
27 March 2000 (27.03.00)

1. The following indications appeared on record concerning:

☐ the applicant ☐ the inventor ☒ the agent ☐ the common representative

Name and Address

NOONAN, Greg
Freehills Patent Attorneys
Level 47
101 Collins Street
Melbourne, Victoria 3000
Australia

State of Nationality

State of Residence

Telephone No.

613 9288 1577

Facsimile No.

613 9288 1567

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☒ the address ☐ the nationality ☐ the residence

Name and Address

FREEHILLS CARTER SMITH & BEADLE
101 Collins Street
Melbourne, VIC 3000
Australia

State of Nationality

State of Residence

Telephone No.

613 9288 1577

Facsimile No.

613 9288 1567

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☒ the designated Offices concerned
☐ the International Searching Authority ☐ the elected Offices concerned
☐ the International Preliminary Examining Authority ☐ other:The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Lazar Joseph Panakal

Telephone No.: (41-22) 338.83.38